

2019 NOAA/AOML/HRD Hurricane Field Program - IFEX

GENESIS STAGE EXPERIMENT *Science Goals & Observational Applications*

Pouch Evolution during Genesis (Pouch) Experiment: Ghassan Alaka (Co-PI), Jon Zawislak (Co-PI), Mark Boothe (Co-PI, Naval Postgraduate School, NPS), Michael Montgomery (Co-PI, NPS), Tim Dunkerton (Co-PI, Northwest Research Associates, NWRA), Blake Rutherford (Co-PI, NWRA)

Goal: To investigate the importance of the pouch, including the shear sheath, which tends to indicate a tropical storm, and its relationship to a low-level circulation and organized deep convection within the pouch [*IFEX Goal 3*]. *In 2019, this experiment has the potential to also be flown collaboratively with the National Science Foundation supported Organization of Tropical East Pacific Convection (OTREC) Experiment.* See the 2019 HRD HFP web page for additional details: <http://www.aoml.noaa.gov/hrd/HFP2019/index.html>

Observational Applications: Observations within this science goal have the potential to improve operational forecasts of tropical cyclone formation by identifying key characteristics of the pouch evolution in developing and non-developing storms. These tendencies can be quantified and incorporated into statistical genesis probabilities issued by the National Hurricane Center. Further impact on genesis forecasts can be made through model evaluation efforts, which have been historically lacking due to the sparse record of in-situ measurements of developing storms [*IFEX Goal 1*]. Of particular focus is on whether models replicate the location of pouch centers in the low and middle troposphere, and whether they represent well the observed thermodynamic environment encompassing the pouch.